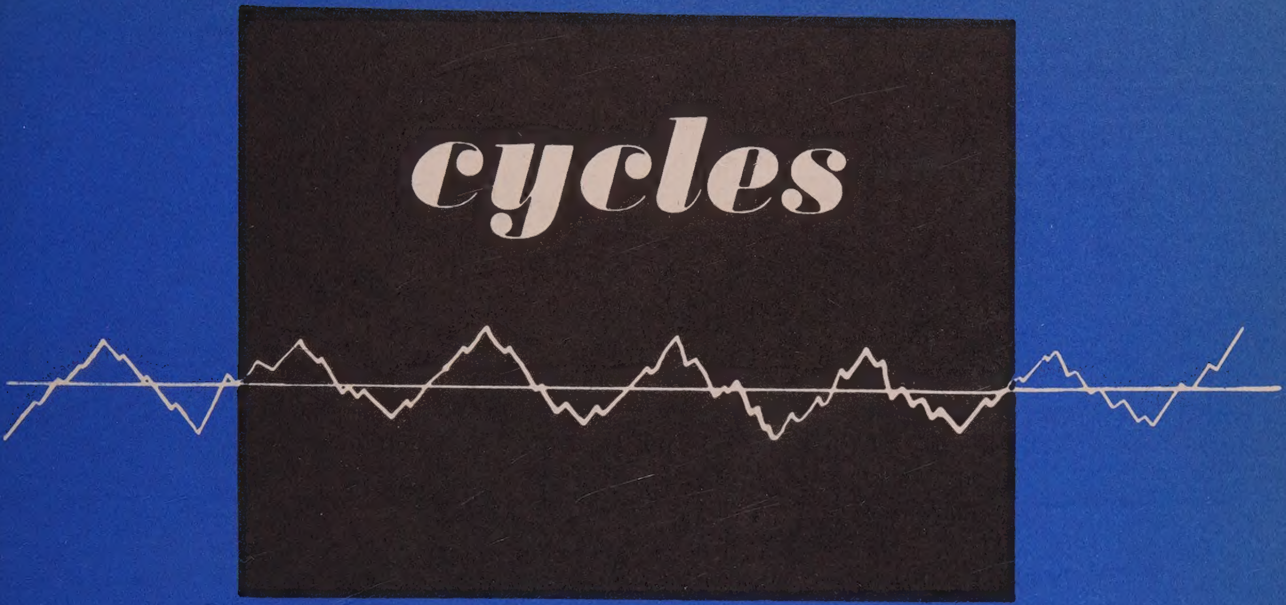
cycles



August 1956

FOUNDATION FOR THE STUDY OF CYCLES
New York, New York

CONTENTS

Page

DIRECTOR'S LETTER 219

HOW IT CAME OUT

The 46-Month Cycle in Stock Prices by Veryl L. Dunbar . . . 221

The 33-Month Cycle in Residential Building Construction . . 228

The 6-Month Cycle in the Electric Potential of Trees . . . 229

FOUNDATION AFFAIRS

New Committee Members 232

THE MODIFIED GEISINGER INDICATOR OF INDUSTRIAL PRODUCTION . . . 234

THE FOUNDATION FOR THE STUDY OF CYCLES

The Foundation is a not-for-profit corporation, the board of directors of which consists the following committee

UNITED STATES OF AMERICA

Copley Amory, Chairman Emeritus

Charles Greeley Abbot
Secretary, Retired
Smithsonian Institution

Harold Elmer Anthony
Chairman and Curator
Department of Mammals
American Museum of Natural History

George Baekeland, Chairman of the
Committee of the Foundation
The Bakelite Corporation

Harold Gardiner Bowen
Vice Admiral, U.S. Navy, Retired

Verne Burnett
Partner
Verne Burnett Associate

Hon. W. Cameron Forbes
Member, Board of Trustees
Carnegie Institution of Washington;
Life Member of the Corporation,
Massachusetts Institute of Technology

Alan Gregg
Vice President, Retired
Rockefeller Foundation

Webster N. Jones
Vice President, Retired
Carnegie Institute of Technology

Charles B. Lansing
Chairman of the Board of Trustees
Western Reserve University

Daniel Trembly MacDougal
Director, Retired
Department of Botanical Research and
Laboratory of Plant Physiology,
Carnegie Institution of Washington

John Quincy Stewart
Professor of Astronomical Physics
Princeton University

CANADA

Hon. Charles Camsell
Commissioner, Retired
Northwest Territories

Frank Cyril James
Principal and Vice-Chancellor
McGill University

GREAT BRITAIN

Sir Patrick Ashley Cooper
Governor
Hudson's Bay Company

Julian Sorell Huxley
Former Director General
United Nations Educational, Scientific and Cultural Organizations

Edward R. Dewey, Director

Cycles is published by the Foundation for the Study of Cycles monthly at the Foundation's office at East Brady, Pennsylvania. Subscription rate $10.00 a year. Entered as second class matter at the Post Office at East Brady, Pennsylvania, with additional entry at Ann Arbor, Michigan. Publication office, 680 West End Avenue, New York 25, New York.

ycles

he official Bulletin of
e Foundation for the
Study of Cycles

VOLUME VII NUMBER 8 AUGUST 1956

THE DIRECTOR'S LETTER

Dear Member:

For this month's report I am giving you three "How It Came Outs," All are remarkable.

The 46-Month Cycle in Stock Prices

The first How It Came Out is the 46-month cycle in stock prices, discovered in 1947 by Veryl L. Dunbar. This cycle, as defined by Dunbar, has prevailed 62 out of 64 times during the past 123 years! It has come true four times since discovery; twice since I told you about it in 1952. It applies specifically to the Axe-Houghton Index of industrial stock prices. It says that, if the precedent of more than a century can be relied upon, the low month of 1957 in this index will be lower than the high month of 1956. Prudent investors will take heed.

The 33-Month Cycle in Residential Building Construction

The second How It Came Out is equally remarkable. It shows the rate of change of residential building construction in comparison with a rigid 33-month pattern projected in *1939* by Professor Pearson of Cornell. Here we have another example of cyclic behavior which has continued--this time for more than 17 years!

The 6-Month Cycle in the Electric Potential of an Oak Tree

Our third How It Came Out deals with natural science figures. A 6-month cycle in the electric potential of an oak tree at New Haven has come true 12 times since 1949 when it was discovered. Cycles in the electric potential of trees are important because these figures go up and down the same way in the same kind of tree even when the individual trees are separated by distances of several miles! This behavior shows a mysterious common environmental cause of the sort that we have a right to suspect in the cycles of animal abundance, human activity, etc., etc. By knowing more about cycles in the electric potential of trees we may learn more about how we ourselves tick.

WHAT'S AHEAD FOR BUSINESS

I read that Presidential Advisors are saying that an upturn of business in the 3rd quarter of 1956 is to be expected. I hope they are right. However, my guess continues to be for a gradual decline for the rest of the year, with an average level of about 135 for the F. R. B. Index of Industrial Production. (The present (May) level is 142.) Let's check up next February to see who is right.

OTHER PEOPLE HAVE TROUBLES!

When I was a young man in college I used to hear the fellows who were majoring in architecture speak with reverence of John Ruskin. The principles that Ruskin had advanced in his *Seven Lamps of Architecture* and in his other writings were the accepted basis of their thinking. These principles were the foundation upon which these young men were building their own architectural superstructures.

It was not always thus. When Ruskin's principles were first advanced they met with great resistance. They are like our knowledge of cycles!

I did not realize Ruskin's troubles until a few days ago when, in an idle moment, I happened to be reading some lectures on architecture given by Ruskin in Edinburgh in 1854. Ruskin's words apply so well to the subject of cycles that I am going to repeat them here--only, I am going to ask you, as you read, to substitute "economics" for "'architecture" and "economists" for "architects." Here is the quotation:

John Ruskin Said

"Most of the lecturers whom you allow to address you, lay before you views of the sciences they profess, which are either generally received, or incontrovertible. I come before you at a disadvantage; for I cannot conscientiously tell you anything about architecture but what is at variance with all commonly received views upon the subject. I come before you, professedly to speak of things forgotten or things disputed; and I lay before you, not accepted principles, but questions at issue. Of those questions you are to be the judges, and to you I appeal. You must not, when you leave this room, if you feel doubtful of the truth of what I have said, refer yourselves to some architect of established reputation, and ask him whether I am right or not....I call upon you....to search into these things for yourselves. Remember that, however candid a man may be, it is too much to expect of him, when his career in life has been successful, to turn suddenly on the highway, and to declare that all he has learned has been false, and all he has done, worthless; yet nothing less than such a declaration as this must be made by nearly every existing architect, before he admitted the truth of one word that I have said to you this evening. You must be prepared, therefore, to hear my opinions attacked with all the virulence of established interest, and all the pertinacity of confirmed prejudice; you will hear them made the subjects of every species of satire and invective; but one kind of opposition to them you will never hear; you will never hear them met by quiet, steady, rational argument; for that is the one way in which they *cannot* be met. You will constantly hear me accused—you yourselves may be the first to accuse me--of presumption in speaking thus confidently against the established authority of ages. Presumption! Yes, if I had spoken on my own authority; but I have appealed to two incontrovertible and irrefragable witnesses,--to the nature that is around you--to the reason that is within you....."

When Will Economists Wake Up?

The existence of rhythmic cycles in wildlife (birds, fish, insects, and mammals) is known to all zoologists. The existence of rhythmic cycles in plant life is known to all botanists. The existence of rhythmic cycles in the number of earthquakes, the thickness and thinness of rock strata, the number of volcanic eruptions, and the advance and recession of glaciers is known to all geologists. Doctors know of the rhythmic nature of certain diseases. And the existence of cycles in solar phenomena and in the light from distant stars is a commonplace of astronomy. Economists however, with "all the virulence of established interest and all the pertinacity of confirmed prejudice," continue to ignore the existence of rhythmic cycles in human affairs. When will they wake up?

Two Witnesses

Ruskin appealed to "two incontrovertible and irrefragable witness,—to the nature that is around you—to the reason that is within you..." I do the same. *Cycles* is devoted to providing you with examples, the number of which is limited only by the time I have available to prepare them for publication and the money we have available for printing. This is "the nature that is around you." *The Cycles are there.* It is now merely a matter of appealing to the reason that is within you," to show that at least some of the cycles cannot reasonably be the result of chance.

Some of the regularities we observed are doubtless the result of chance. However, it is inconceivable that *all* of them are. And if even one of the multitude of regularities I tell you about is not the result of chance this fact is a discovery of fundamental importance. Some day all of this will be fully recognized.

Cordially yours,

Ned Dewey

Edward R. Dewey

How it Came Out

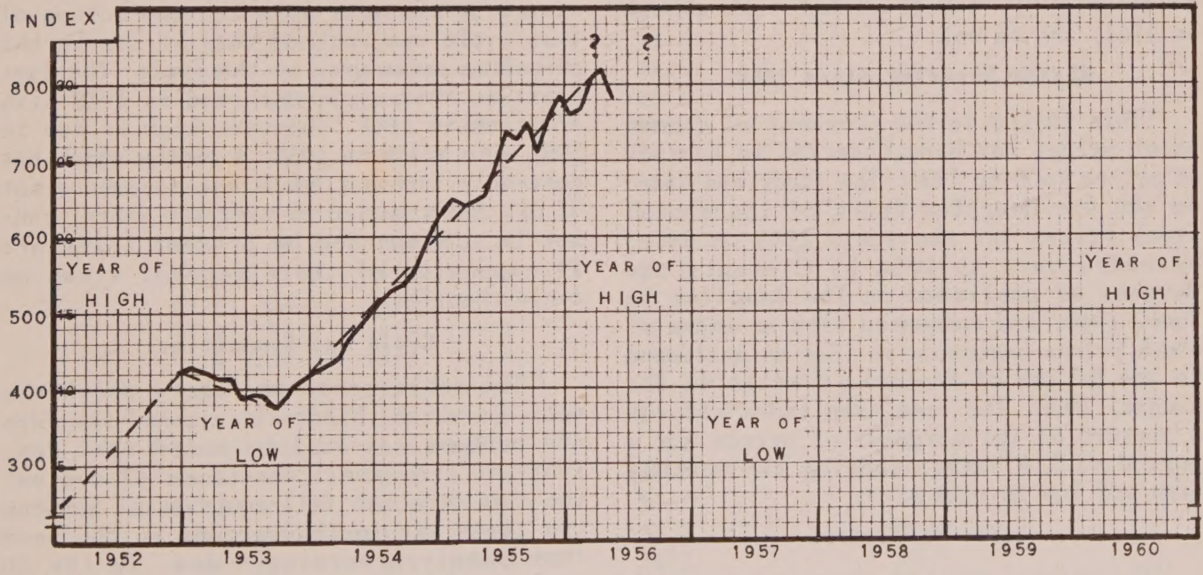
THE 46-MONTH CYCLE IN STOCK PRICES

THE 46-month cycle in common stock prices, has again come true. This makes 62 times out of 64 during the past 123 years that this cycle has prevailed.

This cycle was discovered by Veryl L. Dunbar and discussed by him in an article called "The Bull Market" which was printed in *Barron's* for June 30, 1952. I was so impressed by this article that I reprinted it for you in *Cycles* for October 1952. I went even further. I added an article of my own in which I said:

"In my opinion the 46-month cycle in industrial common stocks, discussed by Veryl L. Dunbar...is real. I feel that it throws light upon the probabilities of the future, and that it must be taken into account in connection with any attempt to forecast the future of stock market prices."

This cycle has prevailed *twice* since these words were written (*four times* since the cycle was discovered). Naturally I con-



The Axe-Houghton Index of Industrial Common Stock Prices, December 1952—May 1956, together with a diagram to show how Veryl L. Dunbar's 46-month cycle came out.

Those who read Dunbar's article, printed in *Cycles* in October 1952, were put on notice of the possibility of a low in industrial stock prices in 1953 and a high in these figures in 1956. If this cycle continues, the next low will be in 1957, a high will follow in 1960, then a low in 1961, then a high in 1964, etc.

tinue to feel the same way, only more so.

The Record

The record of the cycle is shown by the table on the next page. This table is exactly as printed by Dunbar in 1952 except that I have added the value of the high for 1952, the value of the low of 1953 and a value for 1956, all of which values were of course unknown to Dunbar when he wrote his article.

In his article written in 1952, Dunbar said:

DUNBAR'S ARTICLE

"For 119 years a cycle in stock market prices averaging 46 months from one high to another, and from one low to the next, has continued to operate with an accuracy rating of 97%. If this indicator of price movement lives up to its past performances, the year 1952 will bring to a close the bull market which began in 1949. A bear market will follow with a low due in 1953.

[Dunbar's 46-month cycle then called for a bull market with a high in 1956, a bear market with a low in 1957, a bull market with a high in 1960, a bear market with a low in 1961, a bull market with a high in 1964, and so on]

Rhythm Observed Since 1834

"This rhythm in the movement of common stock prices has been observed in a study of prices back to 1834. The study was based on the Axe-Houghton Index of Industrial Stock Prices for the years 1883 to date, extended back to 1854 by Clements and Burgess as published in *The Annalist* in June, 1940, and connected with an index of stock prices beginning in 1834 as published in the *Review of Economic Statistics* for August, 1928. The resulting index affords a picture of the movement of prices for a period of 119 years, showing the monthly high and low in each year.

Index Variations

"Three facts should be kept in mind with respect to any index of stock prices. First, that two indexes of prices will show some slightly different results with regard to the month or year in which the absolute high or low in a movement occurred. Second, the movements of industrial stock prices and railroad stock prices are not always homogenous. Third, the prices of individual stocks do not always follow the pattern of its group index. Any well constructed index will nevertheless show the main trend of prices, which is the main consideration here.

"While this index starts with the year 1834, an annual index of railroad stocks beginning in 1831 shows conclusively that stock prices reached an important high in 1833 and dropped to a low in 1834. It is possible therefore to trace the recurrence of the 46-month cycle starting with the 1834 low. Since that time this cycle has made 30 complete revolutions for a total of 30 tops and 31 bottoms. In only two instances did the index of prices fail to reach a higher level in the year in which the top of the cycle was reached than in the preceding low year of the cycle. In one other case the percent of advance was negligible as measured by this particular index of prices.

Cycle Has Always Prevailed on Bear Side

"Unusually remarkable, however, is the fact that the index was lower in every instance in the year in which the bottom of this cycle was reached than it was in the preceding crest year of the cycle. The last crest in this cycle occurred in 1948 with a bottom in 1949. The next high is due in 1952 with a low in 1953. A rhythm which has correctly forecast 59 market movements out of 61, for a period of over 100 years, cannot be disregarded by prudent investors irrespective of their general views on cycle theories.

Cycle Not Symmetrical

"The table presented above shows the years in which this cycle reached its tops and bottoms. It will be noted that contrary to the usual conception of cycles, the apex does not fall equidistant between two lows, but instead occurs in the year immediately preceding a low. In the 30 completed revolutions of this cycle since 1834 there was a total appreciation in stock values of 2,092% from each low to the next high, or an average advance of about 70% for a bull market swing. A total depreciation in values of nearly 919% is shown for the declines from each high to the next

TABLE 1

The 46-Month Cycle in Common Stock Prices 1834--1956

by Veryl L. Dunbar

A. Years of cycle low according to the pattern 3-4-4-4-4-4 and repeat, and the index of common stock prices for the years of low.

B. Years of cycle high according to the pattern 3-4-4-4-4-4 and repeat, and the index of common stock prices for the years of high.

C. Percent appreciation, low to high.

D. Percent depreciation, high to low.

Common stock prices are the Axe-Houghton Index of Industrial Stock Prices for the years 1883 to date carried back to 1854 by Clement and Burgess and connected with an index of stock prices from the year 1834 as published in a *Review of Economic Statistics*. The index shown for each year is the index for the month in which the high or low occurred in that particular year.*

A		B		C	D
Cycle Low		Cycle High		% Appreciation	% Depreciation
Year	Index	Year	Index	Low to High	High to Low
1834	17.2	1837	22.0	27.9	37.7
1838	13.7	1841	12.2	(1.1)	38.5
1842	7.5	1845	17.5	133.3	5.7
1846	16.5	1849	19.0	15.2	6.8
1850	17.7	1853	27.0	52.5	40.0
1854	16.2	1856	21.2	30.9	57.1
1857	9.1	1860	19.0	108.8	36.3
1861	12.1	1864	37.5	209.9	37.1
1865	23.6	1868	39.7	68.2	20.4
1869	31.6	1872	46.8	48.1	42.7
1873	26.8	1876	39.6	47.8	36.4
1877	25.2	1879	49.0	94.4	12.2
1880	43.0	1883	59.4	38.1	45.1
1884	32.6	1887	73.6	125.8	19.6
1888	59.2	1891	78.4	32.4	6.4
1892	73.4	1895	70.0	(4.6)	37.1
1896	44.0	1899	94.8	115.5	30.8
1900	65.6	1902	102.4	56.1	35.0
1903	66.6	1906	135.4	103.3	46.5
1907	72.4	1910	131.8	82.0	30.0
1911	92.2	1914	111.6	21.0	14.2
1915	95.8	1918	162.5	69.6	14.0
1919	139.7	1922	160.4	14.8	19.8
1923	128.6	1925	198.6	54.4	25.2
1926	148.5	1929	428.8	188.8	64.1
1930	153.8	1933	154.2	0.3	26.9
1934	112.7	1937	293.4	160.3	57.5
1938	124.8	1941	170.0	36.2	29.4
1942	120.0	1945	280.4	133.7	21.4
1946	220.4	1948	283.0	28.4	24.7
1949	213.0	1952	426.4	100.2	11.5
1953	377.5	1956	821.6**	117.6**	
1957	?	1960	?		
1961	?	1964	?		
			Total	2,309.8	929.9
			Average	72.2	30.0

*Figures 1834 through 1949 from The Bull Market by Veryl L. Dunbar as published in Barron's for June 30, 1952, pages 11 and 12. Figures 1953 through 1956 added by E.R.D.

** Through May 1956

() Denotes decrease

low, for an average decrease in prices of approximately 31% for each bear market reaction. In one complete cycle, stock prices advanced 70% and then declined 31% on average for a total change slightly in excess of 100% for each 46-month period.

"In comparing the percent of advance with the percent of decline it should be remembered that 1% of decline results in a larger monetary amount than a 1% advance in the preceding rise. To illustrate, the index shown in the table increased from 65.6 in 1900 to 102.4 in 1902 which was an advance of 56.1%. However the decline from 102.4 in 1902 back to 66.6 in 1903 (appropriately the same level as in 1900) amounts to only 35%. The maximum depreciation in values is 100%. The maximum appreciation in values is supposedly infinite.

"A High" vs "The High"

"Those familiar with the price movement throughout the years will recognize the fact that the years shown in the table do not always coincide with the year in a major bull or bear market. For example, while the 1929 high does coincide, the 1932 bear market low does not since the 46-month cycle ended in 1930. In practically every instance, however, the low year of the cycle has marked the end of a major bear movement. While other factors are undoubtedly involved in the changes in stock prices, it is the intention here to consider only the presence of the 46-month periodicity in the fluctuations of the market. Similarly, no attempt will be made to determine the exact period of this cycle here, except to state that it has averaged about 46-months from low to low and from high to high.

Intervals 3-4-4-4-4-4 Years & Repeat

"Actually the cycles recur at intervals of 3-4-4-4-4-4 years and then repeat with six cycles recurring in a period of approximately 23 years, twelve in 46 years, etc. It is interesting to note, however, that rhythms of about 23 years and 46 years have been observed in other phenomena. Regardless of the exact period of time involved, the fact that this cycle has continued for at least more than 100 years raises the question as to whether these recurrences can be the result of random forces only. The real test of any cycle is whether it continues to operate after it is discovered. The 46-month cycle was first observed by this writer in 1947. It continued to operate in 1948, and again in 1949. Other indications at the present time suggest that it may do equally well in forecasting the price movements in 1952 and 1953.

"The value of any cyclical aid in timing stock transactions is determined only by its actuarial probabilities. How many times has the cycle recurred, and over how long a period of time? How accurate has it been in forecasting the trend of prices? And what was the percent of appreciation and depreciation in the values of stocks in each completed cycle?

97% Accurate in the Past

"It is apparent therefore that the 46-month cycle rates as a very good risk on an actuarial basis. It has recurred 30-31 times in a period of 119 years. It has been accurate 97% of the time. It has pointed the way to an average appreciation of 70% in the value of stocks during bull markets. It would have been possible on the basis of past records for an investor to make an average gain of 100% every 46 months from a combination of both the long and short sides of the market.

"Since no one will ever catch the absolute highs and lows at the turning points in each market, the possibility of such a gain is of course purely theoretical. The probability of gaining from 75%-80% should be realistic enough and this would net an average return of about 20% per year, which should satisfy the most optimistic investor. In this connection, the experienced investor does not have to be told that he must be prepared to take occasional losses along with the gains regardless of his formula for investing. The net result over a period of years is the important thing.

Will It Continue?

"Will this cycle continue to operate in 1952 and 1953? Only time will answer that question, but the past record of the 46-month cycle suggests that the wary investor may want to give thought now to the warning being sounded by this indicated timer of market movements."

HOW IT CAME OUT

In 1952, when Dunbar wrote the above words, no one knew. But now, in 1956 we know (1) that the high which came in December of 1952 showed an advance of 100.2% over the low of 1949, (2) that the low which came in 1953 was 11.5% below the high of 1952, and (3) that, even if 1956 prices go no higher than those of April 1956, the gain from the low of 1953 will be at least 117.6%.

What we do *not* know, as of July 1956, is; will the low month of 1957 be lower than the high month of 1956?

As Dunbar makes clear, he figures his gains from the level of the lowest month in the year of cycle low to the level of the highest month in the year of cycle high (or vice versa) according to a pattern of 3-4-4-4-4-4-4 years and repeat.

This is a perfectly legitimate way of figuring, but requires you to pick the lowest and highest months of the year in

TABLE 2

Rank List of Gains Short Side

Percent Depreciation, High to Low of Cycle, Arranged in Order of Size of Percentage Decline.

5.7			
6.4			
6.8			
11.5			
12.2			
14.0			
14.2			
19.6			
19.8			
20.4			
21.4			
24.7			
25.2			
26.9			
29.4			
30.0	Typical	Majority Range	2/3 Range
30.8			
35.0			
36.3			
36.7			
37.1			
37.1			
37.7			
38.5			
40.0			
42.7			
45.1			
46.5			
57.1			
57.5			
64.1			

TABLE 3

Rank List of Gains Long Side

Percent Appreciation, Low to High of Cycle, Arranged in Order of Size of Percentage Advance.

(4.6)			
(1.1)			
0.3			
14.8			
15.2			
21.0			
27.9			
28.4			
30.9			
32.4			
36.2			
38.1			
47.8			
48.1			
52.5			
54.4		Majority Range	2/3 Range
56.1	Typical		
68.2			
69.6			
82.0			
94.4			
100.2			
103.3			
108.8			
115.5			
*117.6			
125.8			
133.3			
133.7			
160.3			
188.8			
209.9			

() DENOTES DECREASE
* PRELIMINARY

question, if you are to realize the indicated profit. As nobody can do this, in advance, his gains are, as he himself says, theoretical.

Dunbar's Forecast Paraphrased

Dunbar's forecast may be restated, paraphrased, and expanded as follows:

If the patterns of 123 years prevail, 1956 will be a year of high, 1957 will be a year of low.

Percentage declines from the high month of years of high to the low month of years of low (the year next following), arranged in order of size, have been, in the past, as shown in Table 2.

That is to say, there is certain to be a decline, unless the precedent of 123 years is broken. This decline may run anywhere from 5.7% to 64.1%.

Assuming the continuation of the pattern, the odds are slightly better than 50-50 (16 to 15) that the decline will be at least 19.8% and not over 38.5% (see bracket called majority range); the odds are 2 to 1 (21 to 10) that the decline will be at least 14.0% and not over 42.7% (see bracket called 2/3 range).

As this article is being written we do not yet know the value of the high month of 1956, but on December 31, 1956 you will know it (and before that you may be able to guess it). Whenever you are sure of it you can apply the above percentages to it to give yourself the probable values of the low month of 1957.

Table 3 gives you the probabilities for the advance due to follow from the low month of 1957 to the high month of 1960.

Exact Month Not Given

As I said in my article of 1952: "Dunbar will be criticized for not giving the exact month of ideal crest and trough. The criticism is valid, but I can imagine that Dunbar might remind you of an incident in the story of Aladdin's lamp.

The Story of Aladdin

"Aladdin, you remember, with the aid of the good genii, had, overnight, built a sumptious castle for the King's daughter. Only, he had expressly provided that one of the windows be left unfinished so that the King could have the fun of completing the job and sharing in the joy of construction.

"Also, I imagine, Aladdin was not unmindful of the fact that in the months during which the King and all his jewelers would be working to create the missing window, they would get a better appreciation of the significance of the job that Aladdin had already done in building the rest of the castle.

"Do not hold it against Dunbar if he has left something for the rest of us to do, too.

"Is Dunbar's 46-month cycle real? As I said above, I believe it is.

46-Month Cycle in Stocks First Observed in 1944

"I first observed a cycle of about this length in the Standard & Poor's Corporation Index of all stocks combined, June 1871—June 1943. My worksheets show a preliminary determination made on March 6, 1944 of 45 months and a revised determination made on April 24, 1944 as the result of additional work, of 45.5 months. We reported to you in regard to this cycle on page 88 of our report for March 1951.

46-Month Cycle Appears in Periodogram

"Also, a cycle of about this length (46.4 months) appears very importantly in the periodogram of industrial common stock prices printed for you on pages 166 and 167 of our May 1952 report, and in the periodogram of railroad stock prices printed on pages 126 and 127 of the report for April 1949 where the length looks to be 46.9 months.

"These differences of length are not disturbing in view of the preliminary nature of my original work and the limitations of the periodogram as reported to you in an article on pages 229—232 of the June 1951 report.

Cycle Seems M Shaped

"The 46-month cycle is not a simple Λ shaped affair, but it has more of a M shape. This fact, coupled with trend, would naturally make the second peak of the double cycle higher than the first peak and would account for the fact that trading on this cycle is more profitable when you are three years long and one year short.

Other Cycles Suggested

"The peculiar ⋀⋀ shape may be accounted for by cycles about half of 46 months in length (23 months long) and perhaps by cycles about one third of 46 months in length (15 1/3 months long) present in the series along with the basic 46-month pattern.

"The periodograms of industrial common stock prices, by thirds, printed on pages 169—173 of our report for May 1952 all suggest the possibility of cycles of these lengths.

The Problem Ahead

"If this conjecture is correct and if there really are rhythmic cycles of about 15 1/3 months, 23 months, and 46 months present in industrial common stock prices, the next step is to isolate these cycles and then to project and combine them.

"If the cycles are exactly 46, 23, and 15 1/3 months long and continue, Dunbar's 3 - 4 - 4 - 4 - 4 - 4 sequence will, of course, continue permanently. However, if the average length of one or another of these three cycles differs even slightly from the lengths suggested above, the cycles will eventually get out of step with each other. That is why the three cycles, and all other important cycles in the series with lengths which are close to unit fractions of 46 months, must be isolated separately, projected, and combined before we can be as sure as possible about the continuation of this behavior."

The Effect of Trend

The fact that Dunbar's pattern is long for three years, short for one, coupled with the fact that stocks have had an upward trend since 1834, gives his formula an advantage, not based on the cycles as such, but of course it is a real advantage. However, it is not as great as you might think.

I do not know the exact rate of growth of the Axe-Houghton Index, but other indices have an average growth of about 3% a year. The one short year offsets one of the long years. This leaves a gain due to trend for two long years in each 46-month period. This is an average of about 1½% a year gain due to trend. This is a relatively small part of the total net profit.

Seasonal Variation

In each year there are high months and low months. By picking the high month in the pattern's "year of high" and the low month in the pattern's "year of low" Dunbar's formula gives him an additional advantage not due to the cycles as such. Moreover, as no one can pick high months or low months in advance, this advantage is, as Dunbar himself says, theoretical.

Dunbar's formula would be profitable even without this additional advantage. Try setting his dates back one year and you will see what I mean. For example short in the high month of 1928, cover and buy in the low month of 1929, sell and short in the high month of 1932....Do I need to say more?

Summary

Although aided by two non-cyclic elements that are part of his formula, Dunbar's 46-month cycle has been present, as a cyclic pattern, for 123 years and has come true four times since discovery. It is seemingly the result of the interplay of several cyclic forces. If the lengths of these cyclic forces are all exact fractions of 46 months the cycle can be expected to continue indefinitely, If, however, some of these forces have other lengths the pattern will eventually disappear.

E.R.D.

THE 33-MONTH CYCLE IN RESIDENTIAL BUILDING CONSTRUCTION

THE 33-month cycle in residential building construction has continued for six and a half cycles since it was discovered by some Cornell economists over seventeen years ago. The current downturn (relative to a year ago) is ideally due to end February-March 1957, but of course there is usually some variation one way or the other. Then, we are due for 15 months of advance, relative to a year before, to July of 1958.

Two Sections

The chart below is in two sections. The left hand section is copied from *Farm Economics* of February 1939. It illustrated an article by Professors Pearson, Myers, and Brandow. It shows the 33-month cycle in residential building activity as reflected by a 3-month moving average in the 12-month moving percentage of raw data, 1919-1938. The broken zigzag shows the normal wave. The normal wave was projected into the future to show behavior tendencies if the cycle continued.

A "12-month moving percentage" is merely the percentage that the contracts for each month are of the contracts for the same month a year ago. Its advantage is that it eliminates seasonal variation.

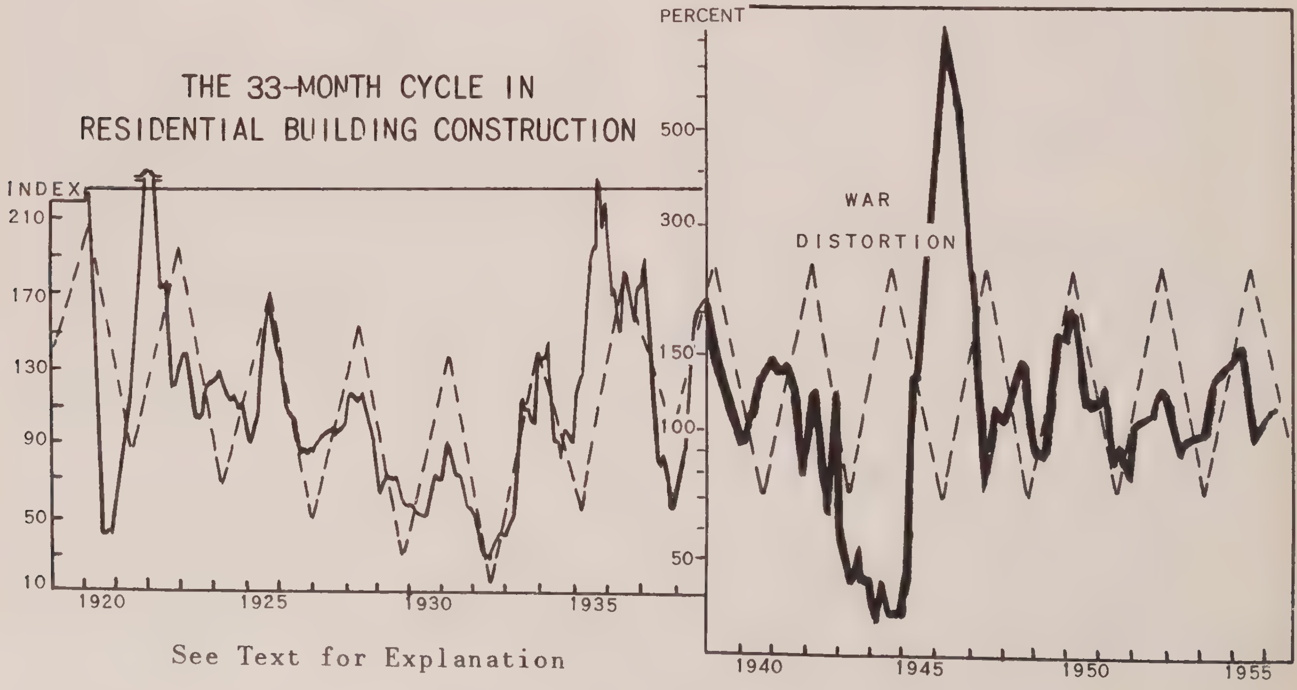
How It Came Out

The right hand section shows corresponding figures, 1939-1956, based on the F. W. Dodge Corporation's valuation of residential building construction contracts awarded in 37 states. For convenience these figures have been plotted on ratio scale instead of on arithmetic scale as in the left hand chart. Note major distortion of actual figures as compared with the normal during the war period, and gradual return to normal after the war's close.

The right hand section has been drawn with a heavy line to indicate that the behavior unfolded *after* the discovery of the cycle.

The 33-month cycle is one of the best substantiated cycle known. There is no doubt in my mind as to its significance.

E.R.D.



See Text for Explanation

THE 6-MONTH CYCLE IN THE ELECTRIC POTENTIAL OF TREES

SUPPOSE you drill two tiny holes several feet apart (vertically) in the trunk of a tree. Now insert one end of a piece of wire in each hole. An electric current will flow along the wire! It is something as if the tree were an electric battery. However there are differences: In a battery the current is of constant voltage; in the tree the voltage varies. In a battery the current always flows one way; in the tree the current sometimes flows one way, sometimes the other. Dr. H. S. Burr of Yale has kept constant records of these changes in potential for a number of trees, night and day, for over thirteen years. He has records minute by minute.

Two Remarkable Things

Dr. Burr's records show two very remarkable things: (1) As you might suspect from the fact that I am writing about it, the ups and downs of the record go in cycles. (2) If you perform the same experiment on another tree of the same kind a tree several miles away it behaves in more or less the same way! When the current flows up in one tree, it does the same in the other. When it flows down or when it is strong or weak, likewise. The cause must be environmental. An unknown *something* in the air or in the earth must make it behave this way.

What is this something? No one knows. But we do know that this unknown something exists, that it has force, and that it is cyclic. When we know more about it we may get a clue to the forces that cause many of the other cycles found in plant and animal behavior.

Through the kindness of Dr. Burr I was able to show you, in our report for November 1950, the electric potential of an oak tree at New Haven month by month from January 1944 through December 1949. These figures showed a definite 6-month cycle, badly distorted in 1944 and 1945. Was this behavior merely accidental? With only eight good repetitions it was hard to say.

Six More Years of Figures

Now however, with figures available for 1950, 1951, 1952, 1953, 1954, and 1955, it is clear that the behavior was *not* accidental. The six-month cycle has continued for *twelve* additional times since discovery. To consider it the result of chance would be fantastic.

If you will turn the page you will see the actual record charted for you so that you can see this 6-month cycle for yourself.

Curve A shows Dr. Burr's actual record; 1944—1955, smoothed by a three-month moving average. This smoothing process irons out the minor wiggles so you can see the 6-month cycle more easily. (A three-month moving average gives you, for each month, the average of that month, the month before that month, and the month after that month.)

Curve B, the broken line running through Curve A, is a short term trend of the figures. (For the technician: It is a centered 6-month moving average.)

Curve C shows the percentages by which the smoothed data are above or below the trend. Expressing them this way minimizes the longer cycles. Curve C has been made extra heavy starting January 1950 to show how the 6-month cycle has unfolded since discovery.

Curve D, the broken line, is a perfectly regular 6-month cycle added to aid you in following the regularities and the irregularities of the six-month cycle.

Curve E is a three 6-month section moving average of Curve C. In other words the first, second, and third 6-month sections of Curve C are averaged to give the 1st 6-month section of Curve E. Then the second, third, and fourth 6 month sections of Curve C are averaged to give the second 6-month section of Curve E. Such a method of averaging has *no effect* whatever upon any perfectly regular 6-month cycle that may be present, but it minimizes the randoms. Of course it loses a 6-month section at each end of the chart.

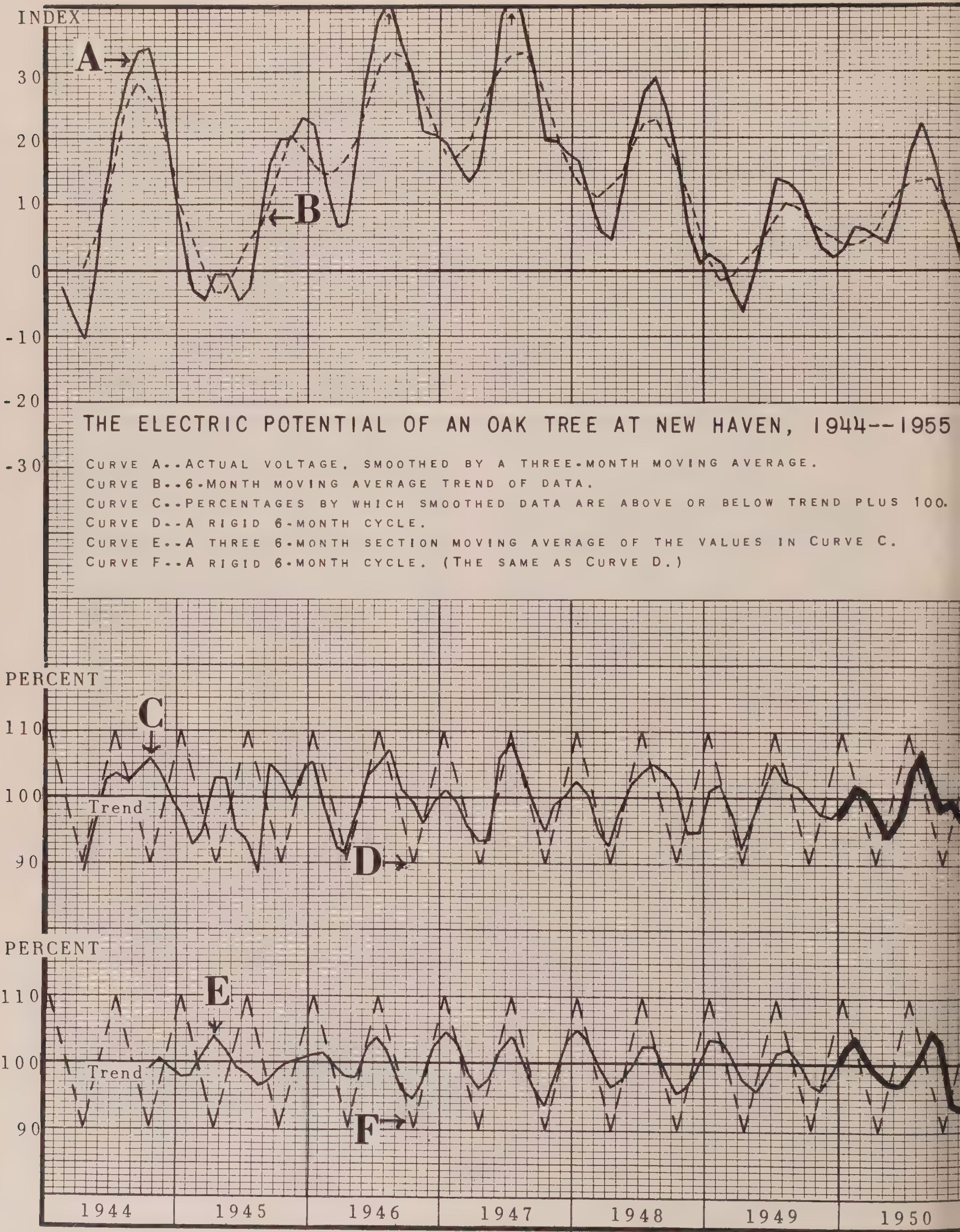
Curve F, a broken line, is a perfectly regular 6-month cycle added for comparison. You will note that the cycle ran late for a period of time but that it is now back on the track. The cycles we deal with in other things often behave the same way. Curve F is the same as Curve D.

The Advantages of Trees

One advantage of trees for cycle study is the fact that they are located at one particular place. Also, with a tree, electrical measurements are easy to make--at least in comparison with such measurements for a grouse or a rabbit or a salmon or a broker. More power to Dr. Burr. May he give us many more figures for study!

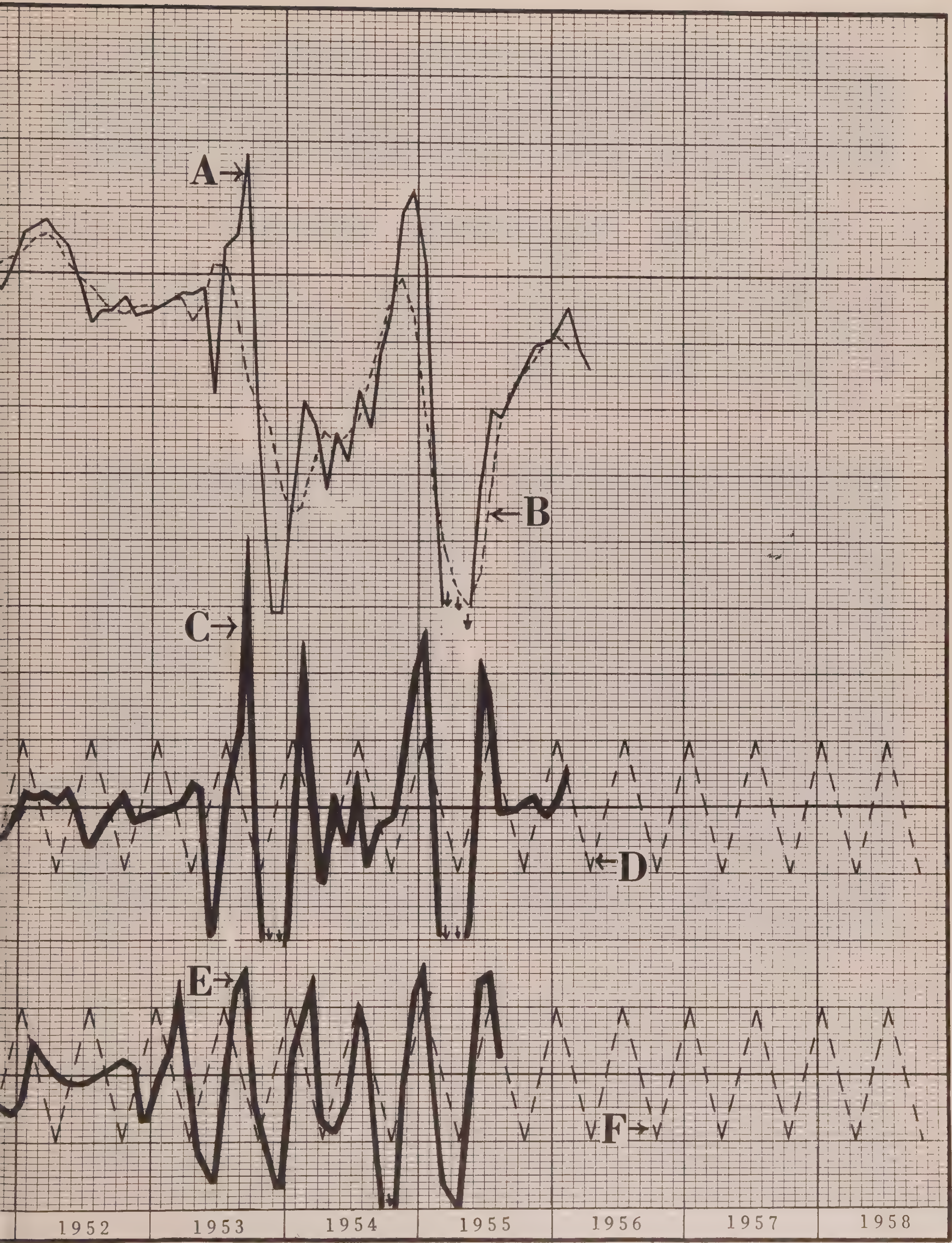
Other Cycles

The 6-month cycle reported upon here is only one of a number of cycles that can be observed in this particular series of figures. All should be isolated and compared with cycles of similar length in other natural science and social science figures. This is a task for the future.



THE ELECTRIC POTENTIAL OF AN OAK TREE AT NEW HAVEN, 1944--1955

Curve A--Actual voltage, smoothed by a three-month moving average.
Curve B--6-Month moving average trend of data.
Curve C--Percentages by which smoothed data are above or below trend plus 100.
Curve D--A rigid 6-month cycle.
Curve E--A three 6-month section moving average of the values in Curve C.
Curve F--A rigid 6-month cycle. (The same as Curve D.)


A
B
C
D
E
F
1952
1953
1954
1955
1956
1957
1958

Foundation Affairs

NEW COMMITTEE MEMBERS

IT is a great pleasure to announce the addition of two new members to our Committee. One of these is Dr. Alan Gregg of Big Sur, California. The other is Mr. Charles B. Lansing of Chagrin Falls, Ohio.

Dr. Gregg has been a friend of mine and of the Foundation since its formation in 1940. His advice, encouragement, and assistance throughout the years have been invaluable. He has had a standing invitation to become a member of our Committee since it was reorganized in 1940, but he felt that his position, first as Director of Medical Science of the Rockefeller Foundation and later as Vice President of that institution, made it inappropriate for him to accept.

However, with his retirement from the Rockefeller Foundation on June 30, this situation changed. He became a member of our Committee effective July 1.

Mr. Lansing is a more recent friend both of mine and of the Foundation. Incidentally, he is a schoolmate and friend of Dr. Gregg.

His wide business experience and his experience as Chairman of the Board of Trustees of Western Reserve University will be of material assistance in connection with solving the problems of the Foundation for the Study of Cycles.

Pictures of both men and biographies from *Who's Who in America* are reproduced below.

ALAN GREGG

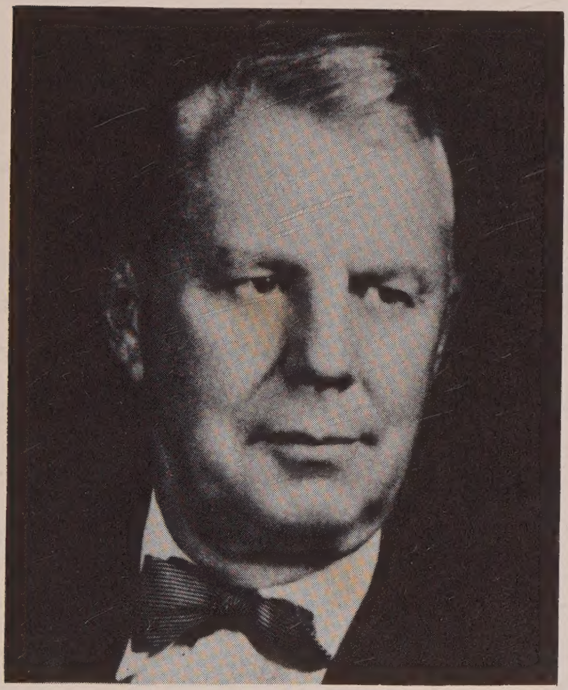
Gregg, Alan, physician; b. Colorado Springs, Colo., July 11, 1890; s. James Bartlett and Mary (Needham) G.; prep. edn., Cutler Acad., Colorado Springs; A.B., Harvard, 1911; M.D., Harvard Med. Sch., 1916; m. Eleanor Agnes Barrows, July 2, 1923; children—Peter Alan, Nancy Barrows, Richard Alexander, Michael Barrows. Interne, Mass. Gen. Hosp., Boston, 1916-17; served with Royal Army Med. Corps, B.E.F., 1917-19; field staff mem. internat. health bd. Rockefeller Foundation, 1919-22, asso. dir. div. med. edn., 1922-28, asso. dir. med. sciences, 1929-30, dir. med. sciences, 1936-51, vice pres., since 1951. Decorated Chevalier Legion d'Honneur, 1951. Fellow A.A.A.S., Am. Acad. Arts and Scis., N.Y. Acad. Medicine; hon. mem. Alpha Omega Alpha, Am. Assn. Physicians; mem. Am. Philosophical Society, Phi Beta Kappa (1936). Club: Century (N.Y.C.); Cosmos (Washington). Home: Big Sur, Cal. Office: 49 W. 49th St., N.Y.C. 20.

CHARLES B. LANSING

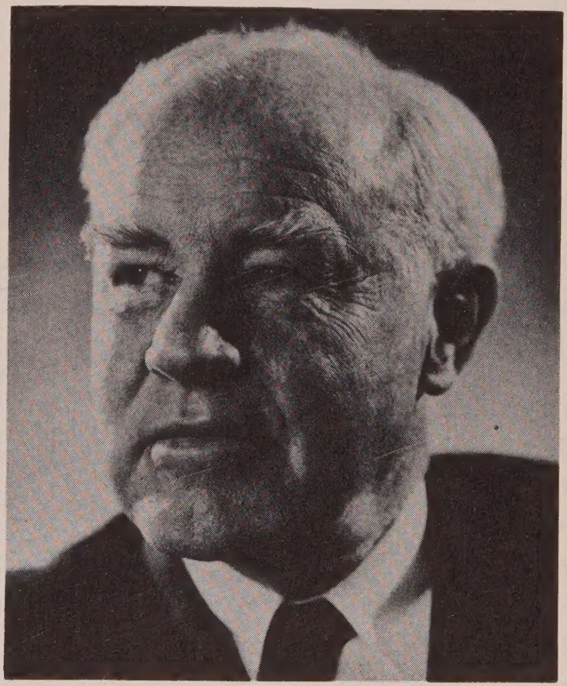
Lansing, Charles Bridgen; b. Colorado Springs, Colo., Nov. 3, 1889; s. Charles A. and Sarah (Macklin) L.; student schools in France; Phillips Acad., Andover; Yale, Sheffield Scientific Sch., m. Alice Scott, 1911; children—Charles B., Jr., Alice Josephine, Gerrit Yates. Began with Denver & Rio Grande Railroad, Simplex auto Company; mgr. Colo. Concrete Co., 1913-15; from 1915-22 was pres. Van Briggle Tile & Pottery Co., and dir. Granite Gold Mines, First Nat. Bank of Colo. Springs and Inter-

Charles B. Lansing Continued

mountain Ry. Light & Power Co. Served in France with 12th Engrs., 1917-19. Pres. Strang Garages, 1921-25; vic chmn. Colo. Highway Commn., 1921-26; mgr. Murray Radiator Co., 1926-27; pres., dir. (chmn. bd.) Nat. Tile Co.; dir. and consultant S. F. Bowser & Co., 1928-30; v.p. Cleveland Storage Co., 1939-40, Billings-Chapin Co.; chmn. bd., dir. Indiana Limestone Corp. 1937-44; cons. engr. Cleveland Trust Co., 1936-46; pres. and dir. Ilco Ordnance Corp. 1942-44; v.p. and dir. The Arco Co., 1935-53, Bendix Westinghouse Automotive Air Brake Co., 1949-53; now pres., dir. Motch & Merryweather Machinery Co.; dir. Cowles Chem. Co., S. Morgan Smith Co., Automatic Voting Machine Co., Ferry Cap and Set Screw Co., Miller Co., Morrison Products Co., S. P. Mfg. Co., Sheriff Street Storage, Chmn. bd. Western Res. U.; v.p. Univ. Hosps. Fellow A.S.M.E.; mem. Newcomen Soc. Clubs: Union (Cleve.); Yale (N.Y.); Cruising of America. Home: Scotlan Farm, Chagrin Falls, O. Office: Penton Bldg., Cleve. 13.



Charles B. Lansing



Alan Gregg

THE MODIFIED GEISINGER INDICATOR

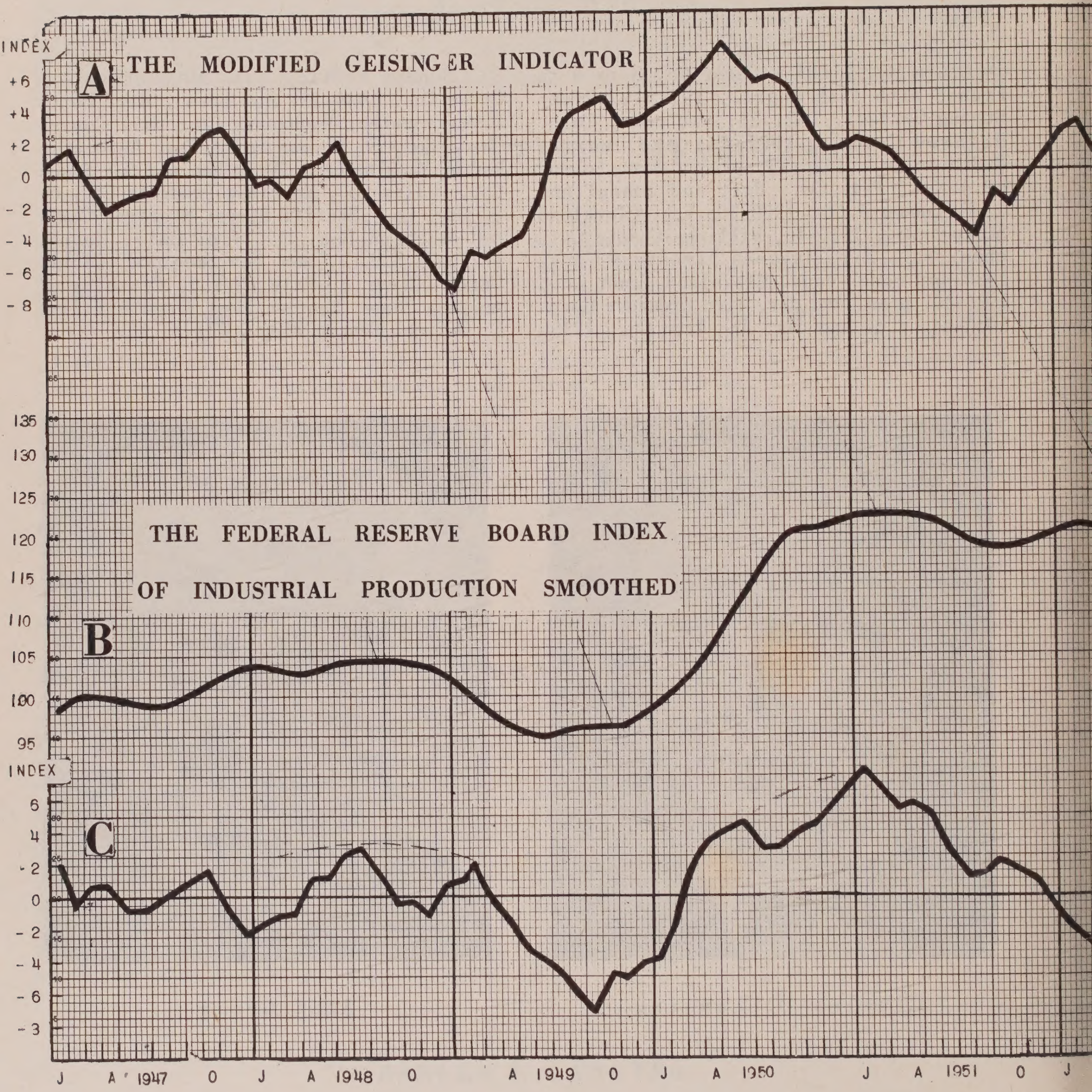
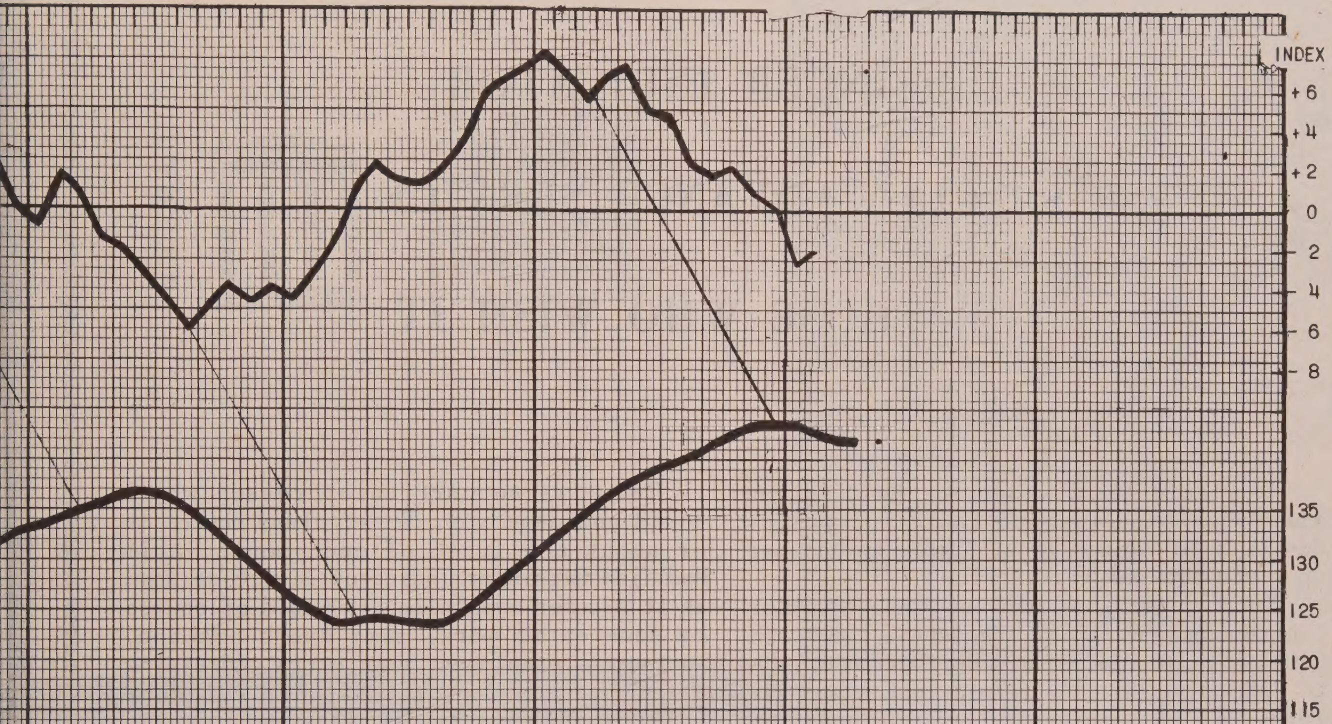


Fig. 1 Curve A. The Modified Geisinger Industrial Production Indicator Curve. This curve is derived from certain figures which are published monthly in the *Survey of Current Business*. It tends to turn about 8 months before the Federal Reserve Board Index of Industrial Production.

Curve B. The Federal Reserve Board Index of Industrial Production adjusted for seasonal variation and smoothed by a 3-month moving average. The value for the latest available month is shown by a dot.

Curve C. This curve is the Modified Geisinger Industrial Production Indicator Curve advanced by 8 months. This process projects part of the curve into the future. If the relationships of the past continue, the projection gives some hint of what may happen to the Federal Reserve Board Index of Industrial Production (Curve B).

OF INDUSTRIAL PRODUCTION



THE FORECAST

The Modified Geisinger Indicator of Industrial Production advanced from -2.66 for January (September 1956 when projected) to -2.10 for February (October 1956 when porjected). I attach no importance to this slight change.

I continue to hold to the guess of an average of 135 for the 2nd half of 1956.

July 5, 1956

E.R.D.

Mr. H. A. Musham
741 No. Rush St.
Chicago, Ill.

GEISINGER INDICATOR

SPECIAL ADVANCE SERVICE

FOR THOSE WHO WISH IT

We plan a special service to give you the Modified Geisinger Indicator of Industrial Production about five weeks sooner than you are now getting it.

The figures that go into the Indicator become available about the 1st of the month Let's say June 1st 1956. This was too late to catch the July '56 report, which was already in the process of being printed. So it had to wait for the August report which went to the printer on Friday, July 13th. The August report was printed by Friday, July 27th. It was mailed Sunday July 29th. Uncle Sam then took a week or so to deliver it. The result of all this is a five week delay.

There is no particular reason why I could not send you, first class mail, on or about the first of each month, this Modified Geisinger Indicator figure as soon as it becomes available. It would of course be some extra work, some extra postage, some extra envelopes, some extra addressing etc., but I think all of this could be handled comfortably for $3 a year extra.

If you are interested, please send your check for this amount and we will put you on the list to receive this special service.

This service available to members only.

E.R.D.

FOUNDATION FOR THE STUDY OF CYCLES
680 WEST END AVENUE, NEW YORK 25, N. Y.